National Institute of Environmental Health Sciences

Circulating influenza virus, climatic factors, and acute myocardial infarction: A time series study in England and Wales and Hong Kong

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Abstract:

BACKGROUND: Previous studies identifying associations between influenza and acute cardiac events may have been confounded by climatic factors. Differing seasonal patterns of influenza activity in Hong Kong and England and Wales provide a natural experiment to examine associations with myocardial infarction (MI) independent of cold weather effects. METHODS: Weekly clinical and laboratory influenza surveillance data, environmental temperature and humidity data, and counts of MI-associated hospitalizations and deaths were obtained for England and Wales and for Hong Kong for the period 1998-2008. We used Poisson regression models that included environmental and seasonal variables to investigate the relationship between influenza and MI. RESULTS: There were >/Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)1.2 million MI-associated hospitalizations and 410,204 MI-associated deaths in England and Wales, with a marked peak in the winter season. In Hong Kong, the incidence of MI, on the basis of 65,108 hospitalizations and 18,780 deaths, had a large winter and smaller summer peak, mirroring patterns of influenza activity. There was strong evidence for a link between influenza and MI both in England and Wales, where 3.1%-3.4% of MI-associated deaths ($P < .001$) and 0.7%-1.2% of MI-associated hospitalizations ($P < .001$) were attributable to influenza, and in Hong Kong, where the corresponding figures were 3.9%-5.6% (P Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) .018) and 3.0%-3.3% (P Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) .002). CONCLUSIONS: Influenza was associated with an increase in MI-associated deaths and hospitalizations in 2 contrasting settings.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3100509

Resource Description

Communication: ☑

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience: ☑

audience to whom the resource is directed

Health Professional

Exposure :

weather or climate related pathway by which climate change affects health

Temperature

Temperature: Extreme Cold, Fluctuations

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Asia, Europe

Asian Region/Country: Other Asian Country

Other Asian Country: Hong Kong

European Region/Country: European Country

Other European Country : England;Wales

Health Impact:

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Infectious Disease

Cardiovascular Effect: Heart Attack

Infectious Disease: Airborne Disease

Airborne Disease: Influenza

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Elderly

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content